

**REMARKS/ARGUMENTS**

The Office Action mailed May 19, 2004, has been received and reviewed. Claims 1 through 29 are currently pending in the application. Claims 1 through 29 stand rejected. Applicants have amended claims 14 and 21-23 and have canceled claims 13 and 30-37 without prejudice or disclaimer. Reconsideration is respectfully requested.

**Double Patenting Rejection Based on U.S. Patent No. 6,277,674**

Claims 1 through 12, and 14 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 12, and 13 of U.S. Patent No. 6,277,674. In order to avoid further expenses and time delay, Applicants elect to expedite the prosecution of the present application by filing a terminal disclaimer to obviate the double patenting rejections in compliance with 37 CFR §1.321 (b) and (c). Applicants' filing of the terminal disclaimer should not be construed as acquiescence of the Examiner's double patenting or obviousness-type double patenting rejections. Attached is the terminal disclaimer and accompanying fee.

**Double Patenting Rejection Based on U.S. Patent No. 6,511,868**

Claims 1 through 12, and 14 through 29 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 5, and 6 through 11, respectively, of U.S. Patent No. 6,511,868. In order to avoid further expenses and time delay, Applicants elect to expedite the prosecution of the present application by filing a terminal disclaimer to obviate the double patenting rejections in compliance with 37 CFR §1.321 (b) and (c). Applicants' filing of the terminal disclaimer should not be construed as acquiescence of the Examiner's double patenting or obviousness-type double patenting rejections. Attached is the terminal disclaimer and accompanying fee.

### **35 U.S.C. § 101 Double Patenting Rejection**

Claim 13 stands rejected under 35 U.S.C. § 101 as claiming the same invention as that of claim 1 of prior U.S. Patent No. 6,277,674. Applicants have canceled claim 13 without prejudice or disclaimer and respectfully submit that the rejection is thus moot.

### **35 U.S.C. § 102(b) Anticipation Rejections**

#### Anticipation Rejection Based on U.S. Patent No. 5,914,524 to Komenaka

Claims 14, and 19 through 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Komenaka (U.S. Patent No. 5,914,524). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Komenaka discloses a semiconductor device fuse comprising a titanium nitride layer and a tungsten layer over the titanium nitride layer. (Komenaka, cols. 1 lines 46- col. 2, line 6.) By way of contrast, claim 14 of the presently claimed invention recites a semiconductor circuit fuse comprising a “silicide layer disposed over the refractory metal nitride layer.” Applicants respectfully assert that Komenaka does not disclose a silicide layer. As Komenaka does not disclose, either expressly or inherently, every element of the presently claimed invention, it cannot anticipate the presently claimed invention. As such, independent claim 14 of the presently claimed invention is allowable.

Claims 19-21 are each allowable as depending, either directly or indirectly, from allowable claim 14.

### 35 U.S.C. § 103(a) Obviousness Rejections

#### Obviousness Rejection Based on U.S. Patent No. 5,914,524 to Komenaka in View of U.S. Patent No. 5,990,537 to Endo et al.

Claims 1 through 5, 13, 15 through 18, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Komenaka (U.S. Patent No. 5,914,524) in view of Endo et al. (U.S. Patent No. 5,990,537). Claim 13 has been canceled, thus the rejection of claim 13 is moot. Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added.)

Komenaka fails to teach or suggest a tungsten silicide layer disposed over the refractory metal nitride layer as recited in independent claim 1 of the presently claimed invention. Endo discloses a semiconductor device with a fuse comprising a substrate 31 a field oxide layer 36 on the substrate 31, a fuse 35/35A on the field oxide layer 36, and insulating layer 37 on the field oxide layer 36 and fuse 35/35A. (Endo, col. 3, lines 1-5; FIG. 3B.) A passivation layer 38 can be formed over the insulating layer 37, but is not located over the fuse 35/35A. (Endo, col. 3, lines 6-7; FIG. 3.) Further, a nitride layer 39 may be formed over the passivation layer 38. (Endo, col. 3, line 8; FIG. 3.) Finally, a metal guard ring 41B can be formed under the passivation layer 38. (Endo, FIG. 3A.) Neither the metal guard ring 41B, the passivation layer 38 nor the nitride layer 39 are formed over or part of the fuse.

By way of contrast, independent claim 1, of the presently claimed invention recites, a semiconductor circuit fuse comprising an insulating substrate, a refractory metal nitride layer disposed over the insulating substrate and a tungsten silicide layer disposed over the refractory metal nitride layer. Applicant respectfully submits that the combination of Komenaka in view of

Endo fails to teach or suggest every element of the presently claimed invention. Further, no motivation exists to combine the teachings of the cited references. More specifically, Komenaka is directed to addressing the problem that a fuse comprising multilayer structure using TiN/Ti/W films are not completely blown. (Komenaka, col. 1, lines 47-52.) Komenaka discloses a semiconductor device having a fuse element comprising TiN/Ti/W films in which a residual fuse element film is prevented from remaining on the fuse itself. Thus, no motivation exists in Komenaka to replace any of the TiN/Ti/W films.

The Examiner acknowledged that Komenaka fails to teach or suggest a “tungsten silicide layer disposed over the refractory metal nitride layer.” (Office Action, page 5.) Endo does not correct this deficiency as Endo fails to teach or suggest that the fuse be made of layers of metals. Instead, Endo teaches that neither the metal guard ring 41B, the passivation layer 38 nor the nitride layer 39 are formed over the fuse or as part of the fuse. (Endo, col. 3, lines 1-8.) Endo does not teach or suggest that the fuse a tungsten silicide layer disposed over the refractory metal nitride layer. (Endo, col. 4, lines 35-40.) Accordingly, applicants submit that the combination of references fails to teach or suggest every element of independent claim 1. As such, independent claim 1 is allowable.

Claims 2 through 5 are each allowable as depending, either directly or indirectly, from allowable claim 1.

With respect to claims 15 through 18, and 22, the Court of Appeals for the Federal Circuit has stated that “dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.” *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). See also MPEP § 2143.03. Having failed to teach or suggest each and every limitation of claim 14 of the presently claimed invention, the prior art referenced as rendering dependent claims 15 through 18 and 22 obvious, cannot serve as a basis for rejection.

### ENTRY OF AMENDMENTS

The amendments to the claims above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

### CONCLUSION

Claims 1-12 and 14-29 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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